

What is claimed is:

a4) 1. In a heat control device, a variable-phase substance exhibiting a property of an insulator or a property of metal in a high temperature phase or a low temperature phase, respectively, and radiating a great amount of heat or a small amount of heat in the low temperature phase or the high temperature phase, respectively, controls a temperature of an object.

2. A heat control device as claimed in claim 1, wherein said variable-phase substance comprises an oxide of perovskite Mn.

3. A heat control device as claimed in claim 2, wherein the oxide of perovskite Mn comprises an oxide of Mn-containing perovskite represented by $A_{1-x}B_xMnO_3$, where A is at least one of La, Pr, Nd and Sm rare earth ions, and B is at least one of Ca, Sr and Ba alkaline rare earth ions.

4. A heat control device as claimed in claim 3, wherein said variable-phase substance is affixed to the object by powder coating, evaporation, crystalline adhesion or adhesion of a film formed of a variable-phase substance containing a binder.

5. A heat control device as claimed in claim 4, further comprising either one of a plate and a film mounted on said phase-variable substance for transmitting infrared rays and reflecting visible rays.

6. A heat control device as claimed in claim 5, wherein the object comprises either one of an artificial satellite and a

199198376-112498

a4)
spacecraft.

7. A heat control device as claimed in claim 1, wherein the oxide of perovskite Mn comprises an oxide of Mn-containing perovskite represented by $A_{1-x}B_xMnO_3$, where A is at least one of La, Pr, Nd and Sm rare earth ions, and B is at least one of Ca, Sr and Ba alkaline rare earth ions.

8. A heat control device as claimed in claim 7, wherein said variable-phase substance is affixed to the object by powder coating, evaporation, crystalline adhesion or adhesion of a film formed of a variable-phase substance containing a binder.

9. A heat control device as claimed in claim 8, further comprising either one of a plate and a film mounted on said phase-variable substance for transmitting infrared rays and reflecting visible rays.

10. A heat control device as claimed in claim 9, wherein the object comprises either one of an artificial satellite and a spacecraft.

11. A heat control device as claimed in claim 1, wherein said variable-phase substance comprises an oxide of Cr-containing corundum vanadium.

12. A heat control device as claimed in claim 11, wherein said variable-phase substance comprises $(V_{1-x}Cr_x)_2O_3$.

13. A heat control device as claimed in claim 12, wherein said variable-phase substance is affixed to the object by powder coating, evaporation, crystalline adhesion or adhesion of a film formed of a

SECRET-14498

Q4
variable-phase substance containing a binder.

14. A heat control device as claimed in claim 13, further comprising either one of a plate and a film mounted on said phase-variable substance for transmitting infrared rays and reflecting visible rays.

15. A heat control device as claimed in claim 14 wherein the object comprises either one of an artificial satellite and a spacecraft.

16. A heat control device as claimed in claim 1, wherein said variable-phase substance comprises $(V_{1-x}Cr_x)_2O_3$.

17. A heat control device as claimed in claim 16, wherein said variable-phase substance is affixed to the object by powder coating, evaporation, crystalline adhesion or adhesion of a film formed of a variable-phase substance containing a binder.

18. A heat control device as claimed in claim 17, further comprising either one of a plate and a film mounted on said phase-variable substance for transmitting infrared rays and reflecting visible rays.

19. A heat control device as claimed in claim 18, wherein the object comprises either one of an artificial satellite and a spacecraft.

20. A heat control device as claimed in claim 1, wherein said variable-phase substance is affixed to the object by powder coating, evaporation, crystalline adhesion or adhesion of a film formed of a variable-phase substance containing a binder.

0919836-11498

21. A heat control device as claimed in claim 20, further comprising either one of a plate and a film mounted on said phase-variable substance for transmitting infrared rays and reflecting visible rays.

22. A heat control device as claimed in claim 21, wherein the object comprises either one of an artificial satellite and a spacecraft.

23. A heat control device as claimed in claim 1, further comprising either one of a plate and a film mounted on said phase-variable substance for transmitting infrared rays and reflecting visible rays.

24. A heat control device as claimed in claim 23, wherein the object comprises either one of an artificial satellite and a spacecraft.

25. A heat control device as claimed in claim 23, wherein the object comprises either one of an artificial satellite and a spacecraft.

26. In a method of controlling a temperature of an object, a variable-phase substance exhibiting a property of an insulator or a property of metal in a high temperature phase or a low temperature phase, respectively, and radiating a great amount of heat or a small amount of heat in the low temperature phase or the high temperature phase, respectively, is affixed to said object.

27. A method as claimed in claim 26, wherein the object comprises either one of an artificial satellite and a spacecraft.

method as claimed in
substance comprises
and an oxide of Cr-cont
method as claimed in c
er one of an artificial

[REDACTED] 1/20/78 [REDACTED]

2

add \rightarrow